Canadian and International Education / Education canadienne et internationale

Volume 26 | Issue 1 Article 6

10-24-2012

Transnational Curriculum Transfer and the Role of Feasibility Assessment

Andrew Hughes

Alkande Urasa

TRANSNATIONAL CURRICLUM TRANSFER AND THE ROLE OF FEASIBILITY ASSESSMENT

Andrew S. Hughes
University of New Brunswick
and
Aikande Urasa
Jangwani Girls' Secondary School,
Dar Es Salaam, Tanzania

INTRODUCTION

Educational borrowing between and among developed as well as developing nations has a long tradition, much of it not particularly successful. For example, studies of the introduction of the Inquiry Teaching Method (ITM) into Korea point to its general failure (Lee, Adams & Cornbleth, 1988) while assessment of MIT's African Education Programme (aimed at improving mathematics and science curricula) has shown that the programmes are misunderstood and badly taught (Hawes, 1979, p. 38). What these cases illustrate is the difficulty of achieving successful transnational transfer of curriculum. When explanations are offered, they tend to suggest "simplistic, uncritical . . . international transfer" leading to "innovation failure" (Crossley, 1984, p.76) or the inability to respond satisfactorily to "a different social context, a different tradition, and a different cultural environment . . ." (Lee, Adams & Cornbleth, p. 240). As a Canadian and a Tanzanian, we were anxious to overcome such deficiencies when we confronted the task of trying to determine whether an environmental education program developed for high school students in Canada might be readily adapted to the situation in Tanzania.

FEASIBILITY ASSESSMENT

The task that we faced was essentially one of feasibility assessment. Accepting that the intended results were desirable, we asked whether the proposed programme was practicable in the Tanzanian context; whether it was 'do-able.' The process that we envisaged consisted of four phases:

Phase 1: an analysis of program operations in the originating

situation in order to identify those conditions essential to successful implementation;

Phase 2: a scan of circumstances in the adopting situation to determine whether the essential conditions for success are in place, or can be put in place;

Phase 3: a small scale pilot project under the best available conditions in the adopting situation; and

Phase 4: widespread (nationwide) field-testing under typically available conditions.

Information generated at phases 2, 3, and 4 was to be used to make changes likely to enhance the possibilities of success, or indeed, to determine that the likelihood of success was not high and that the project should, therefore, be abandonned.

Feasibility assessment is generally conceived of as a preliminary analysis carried out before the launching of a major project. In essence, "a feasibility study should provide all the data needed for an investment decision" (Behrens & Hawranek, 1991, p. 15). The objective is to determine whether a programme, technology or innovation can be undertaken successfully. When the project involves transnational transfer, the concern is to determine whether any of the circumstances of the originating country are prerequisite to its success in the adopting state. In this respect, feasibility assessment requires the identification of those antecedent conditions that must be in place, or put in place, if a programme is to transfer successfully across national boundaries. The greater the difference between the countries involved in terms of human and material resources, cultural values and expectations, as well as political and educational histories, the greater the difficulty likely to be encountered. While feasibility analysis has become common practice in helping to shape decisions related even to small-scale business investment in the developing world, it remains a rare practice in education, even when the investments to be made are considerable.

Some approaches to feasibility assessment are technically oriented and extremely comprehensive; others are non-technical aimed at users who may have limited levels of literacy and/or education. The United Nations Industrial Development Organization (UNIDO) has recently developed a *Manual for the Preparation Industrial Feasibility Studies* that has been used by "government ministries, banks, investment promotion agencies,

universities and other institutions of higher learning" (Behrens & Hawranek, 1991, p. iii). The UNIDO approach directs particular attention to: Project Background and Basic Idea; Market Analysis and Marketing Concept; Raw Materials and Supplies; Location, Site and Environment; Engineering and Technology; Organization and Overhead; Human Resources; Implementation Planning and Budgeting; Financial Analysis and Investment Appraisal. It is a sophisticated and comprehensive approach designed for business and industrial use. Much of its business-oriented language is not readily compatible with the discourse of elementary and secondary education but the ideas are nonetheless relevant. At the other end of the spectrum, Kindervatter (1987) shies away from the form and format of large-scale industrial feasibility analysis but is nevertheless able to address all of the major issues in an essentially non-technical fashion. Her concern has been with helping women in developing countries establish small businesses. She poses two general questions:

1. To what extent is the programme workable or do-able in the new situation?
2. To what extent is it likely to achieve worthwhile results?

In order to address these questions, she recommends procedures that involve detailed examination of the potential programme; determination of need in the adopting situation; estimation of costs and benefits; and, ultimately, a decision on whether to proceed. While one approach is highly technical and the other non-technical, both confront the need to assess the feasibility of a course of action before proceeding with the associated investments.

For the most part, feasibility analysis has received very little attention in the literature of educational change in general, and transnational curriculum transfer specifically. There is little evidence in the published literature of any sustained and systematic attempt to assess the feasibility of educational innovations for transnational transfer prior to their implementation in developing countries, though such a concern has been advocated. (Rondinelli, Middleton & Verspoor, 1990. p. 47) There are instances of needs assessment, as well as some pilot project and field testing, but nothing that follows the comprehensive procedure outlined above. In some respects, this is hardly surprising since feasibility analysis in education is not itself a widespread or valued pursuit even in developed

countries. For example, it is not listed in Scriven's (1991) *Evaluation Thesaurus* nor does it appear as a separate topic in the index of the most highly regarded text on educational change (Fullan, 1991), receiving, in fact, just passing comment (see, for example, p. 44). Indeed, in reviewing the current status of feasibility assessment in the *International Encyclopedia of Curriculum* (Lewy, 1991), Sosniak reports that "an extended, highly systematic study of a proposed curriculum is both unlikely and not necessarily desirable" (p. 438). The justification offered is that the costs would be staggering and the results weak since effectiveness in one setting is no guarantee of effectiveness in another. The availability of relatively cheap and cost-effective techniques of feasibility assessment is simply ignored.

In this paper we demonstrate the low-cost and effective feasibility strategies that are associated with phases 1 and 2 of the feasibility assessment process. Essentially we take the position that much can be accomplished by first identifying the conditions that contribute to success in the originating country or situation and then by determining whether these conditions can be replicated (and are worth replicating) in the adopting situation. If considerable congruency between what is required for success and what can be put in place can be achieved, then the likelihood of successful transfer is enhanced and the investment in local pilot-testing and perhaps field trials will be worthwhile. Large disparities should cause planners to question the feasibility of the project no matter how desirable it might appear. The particular context for this study involves assessing the feasibility of implementing in Tanzania a program conceived and developed in Canada for use by Canadian teachers and students.

THE ISSUE OF ENVIRONMENTAL EDUCATION

In spite of growing world-wide concern about environmental issues, developing countries have been able to take only limited steps to address the problems. There are few fully developed environmental education programmes in schools and, for the most part, environmental issues have been treated as minor topics within more general courses of study. In many developed countries, on the other hand, large scale systematic programmes have been introduced in schools. The concern is whether an approach to environmental education employed widely in developed countries is a

feasible option for the national education systems of developing countries. In order to examine the issue, the Environmental Science course 112/113 currently in use in New Brunswick, Canada, was assessed in order to determine the feasibility of its adoption in or adaptation to the public school programme in Tanzania. (The 112/113 designation simply means that it is a course normally taken in grade 11 and is suitable for students likely to proceed to university level education (112) as well as for those likely to enter the workforce (113)).

The approach to the analysis fell into two parts. In part one, the focus was on an assessment of the environmental education programme *in situ;* that is, as it operates in Canada. The purpose here was to identify those factors that were considered to be of critical importance in the successful operation of the programme. The second part of the study required a "goodness of fit" analysis to determine if there were any important discrepancies between the conditions necessary for success, as found in Canada, and the circumstances likely to prevail in Tanzania.

PHASE 1: FEASIBILITY ASSESSMENT

The first phase of the study involved the detailed consideration of the programme in operation in Canada. Initially, the provincially authorized curriculum guides and teaching/learning materials proposed for use in the course were subjected to detailed scrutiny. Thirteen schools using the programme were visited. There were seven urban and six rural schools, and they ranged considerably in size from a few hundred students to almost three thousand. All facilities and resources used to conduct the programme were examined along with all of the curriculum materials actually in use. In each school the course teacher or the teacher coordinating the course participated in an extensive interview concerning all facets of the course's operation.

Salient features of the programme

Initially, all aspects of the teaching and learning materials were analyzed using the Curriculum Materials Analysis System (CMAS) (Morrissett, Stevens and Woodley, 1969). CMAS requires detailed examination of: product characteristics, rationale and objectives; content; methodology; conditions for implementation; and student evaluation. In brief, the analysis

revealed a one-year course aimed at high school students aged 16-18 at all ability levels, who might or might not be interested in science-oriented studies after graduation from high school; it is flexible, with interdisciplinary units that emphasize the interaction among science, technology and society. Three specific textbooks are recommended. The course attempts to create an awareness of complex environmental problems. It is based on the concepts of ecology but it also allows some time for issues and/or problems at the local, provincial or global level. The recommended methods of teaching place emphasis on the discussion of issues, hands on activities including laboratory work, and field trips. Use of newspapers, magazines, reports and documents is equally encouraged. Teachers are expected to plan the course in relation to three major types of concern. First, students are to develop an understanding of basic ecosystem structure as well as population growth, climate, energy and natural resources. Second, there is to be a consideration of specific environmental issues such as acid rain, green house effect and ozone depletion. Third is the inclusion of issues that are regional, national and global. There are no specific evaluation plans or instruments for measuring student performance included with the curriculum materials.

The comprehensive CMAS analysis served as the basis for the detailed interviews with the course teachers and coordinators. First it was used to confirm that the major elements of the programme were indeed in place, as they were in all the schools. Second, it provided a measure of focus in exploring programme impact and the relative importance of possible contributing factors.

Impact analysis

In the interviews with the teachers, three aspects of programme impact were explored: effects on student understanding and concomitant appreciation of environmental issues; effects upon the learning environment; and effects upon teachers' working conditions. The major effects identified by the teachers are summarized in the form of costs and benefits in Table 1. Only those effects confirmed by 70 percent of the teachers are listed.

As noted in Table 1, teachers were able to identify a number of benefits that they attributed to the environmental education course. Importantly, teachers judged that their students had developed more knowledge about,

and appreciation of, environmental issues. While they did not have long-term data to support their views, they also felt that the course was having a lifestyle impact with students showing more environmentally responsible behaviours. Many teachers reported students participating in activities ranging from the cleaning of beaches and stream valleys to the planting of trees, through school-based activities and through their participation with other groups. Teachers also felt that benefits flowing from the course included their own use of a wider range of teaching approaches than in their usual science courses and that this contributed to a more positive and productive learning climate in the class. Almost all of the teachers mentioned that the introduction of the environmental education course meant that a greater number of students from a wider range of abilities was involved in science education at the high school level than had previously been the case.

While the teachers identified a number of benefits emanating from the course, they also pointed to a number of costs that have to be shouldered. One of these costs is the initial financial investment that has to be made at a governmental level. The others are costs carried by the teachers themselves in the form of increased stress resulting from additional demands placed upon their time and expertise. The issue to be confronted is whether the benefits derived are worth the costs incurred. With curriculum innovation, it is clear that when teachers do not perceive a new programme as yielding a significant relative advantage over their current practices they will simply abandon the programme and return to previous practices or use only those aspects of the programme necessary to give the appearance of compliance with government or school board policies. Importantly, the identified costs were carried largely by the teachers, but only for a limited time. In the case of the environmental science course, teachers pointed to the resources made available to support the course and the training provided by the provincial Department of Education and their own professional association as helping to minimize the difficulties encountered as the new programme was introduced.

Table 1 Programme Impact: Costs and Benefits

Costs	Benefits
1. Increased time demand upon teachers.	1. Improved student knowledge and awareness.
2. Increased teacher stress related to pressure to "cover the course."	2. Changes in environmental beliefs and attitudes.
3. Initial financial investment.	3. Possible long-term impact on lifestyle.
4. Increase in the demands made upon teachers because of the wider ability range in the course.	4. Improved student research skills, including writing.
	5. Inspires student interest and pursuit of further knowledge.
	6. Improved classroom climate.
	7. Increase in number of students (particularly from the lower ability range) electing an additional science subject
	8. Allows teachers greater flexibility in selection of teaching methods.

Factors supporting and inhibiting successful implementation

In addition to using the interviews to explore how individual teachers were making use of the environmental science course, considerable attention was directed toward identifying those factors that teachers viewed as important in contributing to or inhibiting the successful implementation of the programme. Their views are summarized in Table 2.

The teachers readily identified the fact that the course addressed clearly perceived needs as being fundamental to successful implementation. Need manifested itself in two ways. First, they felt that there existed a high level of awareness among the teachers themselves about environmental issues at the local, national and global levels. Similarly, the public was increasingly aware of the issues and sympathetic to using the school programme to provide a science oriented course that would address an important social concern. Second, there had been a history in many schools of science subjects at the high school becoming the preserve of only those students who showed a particular flair for scientific understanding, particularly in an abstract or highly mathematical form. Many of the teachers perceived the environmental science course as providing a legitimate avenue for average-ability students to continue their scientific education. The introduction of the environmental science course, therefore, addressed two important needs.

The fact that the course is taught by teachers who are recognized as experienced and specialized science teachers, has helped establish a measure of credibility which has been further aided by the course being given equal status with other science courses in the high school curriculum. Several teachers offered the view that had the course been designated as being suitable only for the less able student, then it would not have enjoyed the support of the specialist science teachers who would have resisted accepting it as part of their teaching assignment. Also contributing to the high level of credibility that the course has enjoyed is the fact that many high ability students have been attracted to it from the beginning and so it has not been perceived as a "soft option."

Also perceived by the teachers as being of crucial importance to the successful implementation of the course has been the availability of significant and ongoing in-service education directly related to the course. Teachers have viewed this training as fundamental of helping them attend to the wider range of learning abilities of students in the environmental science

Table 2
Factors Supporting and Inhibiting Successful Implementation

Supporting Factors	Inhibiting Factors
1. Need (a) to improve general awareness of environmental issues; (b) to increase opportunity for science related studies. 2. Availability of a highly qualified pool of potential environmental education teachers. 3. Course recognized as a legitimate alternative to traditional science courses(Physics, Chemistry, Biology, Geology). 4. Positive student response to the course. 5. Teachers provided with support in the form of in-service training.	1. Increased demands resulting from having to teach students from the full spectrum of the ability range. 2. Course demanded a greater repertoire of teaching strategies. 3. Need for curriculum materials designed specifically to address issues in Tanzania. 4. Possible inadequate English language proficiency among some Tanzanian students.

course as well as generally helping them enrich their range of teaching strategies. Without this sort of in-service training, many of the teachers felt that they would not have been able to successfully introduce and maintain the course.

PHASE 2 FEASIBILITY ASSESSMENT

The question of the feasibility of the programme for adoption in Tanzania hinges on the degree to which the prerequisite conditions for success can be met there. The analysis of the course in Canada points to several necessary conditions. Clearly such a course would have to be perceived as addressing significant educational needs. There would have to be available a suitably qualified pool of teachers who would champion the introduction of the course which would also have to have recognized status within the school programme. Finally there would have to be available suitable teaching and learning materials as well as appropriate in-service training for the teachers.

In the absence of a comprehensive data base that could respond definitively to the issues, we assembled a panel consisting of five experienced Tanzanian teachers who drew upon their own backgrounds in judging whether the specified conditions could be met. Essentially, the Tanzanian educators served as a focus group that was interviewed on a range of issues pertaining to educational circumstances in their own country. Their commentary on circumstances in Tanzania would suggest that at least some of the necessary conditions are already in place together with a basic infrastructure that could serve to develop the others. The following commentary is based on the perceptions and judgments of the Tanzanian panel.

Perceived need in the adopting country

Tanzania like many other developing countries, faces problems of overpopulation, deforestation, desertification, soil erosion, water pollution and drought, all of which are often associated with poor environmental practices. Recently, the government of Tanzania has shown a growing concern about such issues. A National Environment Management Council has been established and in February, 1992, a three-day seminar was organized in Kibaha (Coast Region) on the importance of environmental education. The national radio system has recently started broadcasting

programmes targeted at environmental issues affecting the country. Certainly, there is a growing sense of the need to address matters pertaining to the protection of the environment and an environmental education programme in the schools might well be a timely initiative in light of the perceived need, at least among national leaders. Furthermore, a Tanzanian strategy for environmental education would be consistent with the philosophy of "Socialism and Self-Reliance" that has been the basis of national policy since the Arusha Declaration. (Nyerere, 1985, p. 46.)

Personnel

There is available in Tanzania a good supply of teachers with suitable academic background, including training in biology, who would be able to assume responsibility for an environmental science programme. While there is a supply of suitably qualified teachers, their background and training tend to incline them toward the individual sciences rather than toward an interdisciplinary programme. Were an environmental science programme treated as a non-examinable option for less able students, it is likely that there would not be an enthusiastic demand for the teaching assignment. Clear and tangible commitment to an environmental science course through recognition as an examinable subject included in the school certificate examinations would be prerequisite to teacher support and public recognition.

Instructional materials and inservice training

As in most developing countries, Tanzanian schools suffer from a lack of teaching materials. For the most part there is a heavy reliance upon the use of the approved textbook and students and teachers have little access to a broad range of supplementary materials. However, the supplementary materials that are often needed in the environmental science programme are materials that demonstrate the local application and relevance of more general principles. Local curriculum development projects associated with the introduction of an environmental science programme could be a productive and professionally enhancing avenue for the production of the sort of supplementary materials that would be required. It would also ensure the relevance of the learning materials for the environmental, linguistic, political and socioeconomic circumstances of the teachers and students. This

sort of work that could be sponsored by the national Institute for Curriculum Development (ICD).

Similarly, there is not now in place a national in-service programme that would lend itself easily to the introduction of an environmental science programme. However, the infrastructure necessary for such in-service training could be readily developed using Tanzanian educators, perhaps working in collaboration with foreign consultants. Certainly, such a highly targeted programme focusing on such a timely issue, might be an attractive option for a World Bank, CIDA or other development initiative. Indeed, it would not be unreasonable to expect that curriculum development and in-service training might be pursued in tandem.

Unique features of the Tanzanian situation

The panel of Tanzanian educators identified two issues that they felt would need to be addressed should the project be carried forward to pilot testing in country. First, while the general instructional approach espoused in the Canadian project might prove useful, they suggested that the particular environmental issues that serve as the core subject matter of the course would not. They suggested that the topics of acid rain, ozone depletion, and green-house effect should give way to more immediate and locally pressing environmental issues associated with overpopulation, desertification, water pollution and drought. Secondly, they raised the question of language proficiency. Since elementary education in Tanzania is conducted in Swahili, they wondered about English language proficiency in such a course even thought English is the medium of high school instruction.

The issue of directly relevant environmental subject matter was considered to be a challenge that could be addressed readily by curriculum developers and teachers in Tanzania. The issue of language proficiency was one that the group thought should be explicitly examined during pilot testing.

CONCLUSION

The feasibility assessment process described here should not be construed as substituting for rigorous, local pilot testing and field trials of any curriculum developed or adapted for use in a developing country. Such steps would constitute phases 3 and 4 in a comprehensive feasibility

assessment process. What it does point toward are the initiatives needed in order to provide a reasonable chance of ensuring success during field-testing and in the long term.

The data collected in Canada tend to suggest that a course similar to Environmental Science 112/113 might well prove worthwhile and workable in Tanzania, with some adaptation to take into account the local circumstances. The Canadian data point to promising benefits that potentially outweigh the costs associated with introducing the programme. Of course, the circumstances in Canada and Tanzania are different. The issue is whether the circumstances contributing to successful programme implementation are available in both places. There is in Tanzania a sense of the need for an environmental education programme and there is also available a suitably qualified teaching force. Lacking at the moment are a clear expression of governmental commitment to an environmental education initiative in the schools, a range of readily accessible teaching and learning materials, and a comprehensive programme of in-service training for the potential teachers. Initiatives that would provide local in-service training for teachers and lead to curriculum development activities to provide the supplementary resources that are necessary would appear to be at least within the realm of the possible. Without such initiatives, it is unlikely that an environmental science course would achieve much success. With them, and the already existing sense of need and well qualified teaching force, environmental science becomes a feasible option for the Tanzanian secondary school programme.

REFERENCES

Behrens, W., & Hawranek, P.W. (1991) *Manual for the preparation of industrial feasibility studies.* Vienna, UNIDO.

Crossley, M. (1984). Strategies for curriculum change and the question of international transfer. *Journal of Curriculum Studies, 16* (1), 75-78.

Fullan, M.G. (with Stiegelbauer, S.) (1991). *The new meaning of educational change.* Toronto: OISE Press.

Hawes, H., *et al.* (1979). *Curriculum and reality in an African primary schools.* London, Longman.

Jong jag lee., Adams, D., & Cornbleth, C.(1988). Transnational transfer of

curriculum knowledge: a Korean case study," *Journal of Curriculum Studies, 20*(3,), 233-346.

Kindervatter, Z. (1987). *Doing a feasibility study: training activities for starting or reviewing a small business.* Washington, OEF International.

Morrissett, I., Stevens, W.W., & Woodley, C. P. (1969). A model for analyzing curriculum materials and classroom transactions. In D. McClure Fraser (Ed.). *Social studies curriculum development: prospects and problems* (pp. 229-276). Washington: National Council for the Social Studies.

Nyerere, J.K. (1985) Education in Tanzania. *Harvard Educational Review, 55* (1), 45-52.

Rondinelli, D.A., Middleton, J., & Verspoor, A. M. (1990). *Planning educational reforms in developing countries: the contingency approach.* Durham, North Carolina: Duke University Press.

Scriven, M. (1991). *Evaluation Thesaurus (4th edition).* Newbury Park, CA., Sage.

Sosniak, L.A. (1991) Feasibility studies. In A. Lewy, (Ed.). *International Encyclopedia of Curriculum,* New York, Pergamon Press.